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CLAIMS:

1. A security system having transponder means adapted to be actuated to generate and transmit an electromagnetic trigger signal, and a portable
5 electronic device adapted to receive and respond to said trigger signal by transmitting a response signal, the receipt and authentication of which by the transponder means gives rise to a predetermined event, said response signal comprising one or more radio frequency signals of a frequency and duration determined by an algorithm together with a unique number stored in the device
10 and with reference to a random number contained in the trigger signal.
2. A security system according to claim 1 wherein said response signal contains three variables comprising the number of pluses in the RF signal, the frequency of the pulses and the pulse duration.
- 15 3. A security system according to claim 1 or claim 2 wherein the transponder means includes a receiver which is tuned to the expected frequency of the response signal in accordance with the random number contained in the trigger signal.
- 20 4. A security system according to any one of claims 1 to 3 wherein the transponder means is actuated by a proximity sensor.
5. A security system according to any one of claims 1 to 3 wherein the
25 transponder means is actuated by a switch.
6. A security system according to any one of the preceding claims wherein

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the predetermined event is the actuation of a door lock or the enabling of a control system.

7. A security system according to any one of the preceding claims wherein
5 a random number generator is associated with the transponder means and generates a new random number upon each actuation of the transponder means.

8. A security system according to any one of the preceding claims wherein
the transponder means transmits the trigger signal for a predetermined period
10 following actuation or until reception of an authenticated response signal.

9. A security system according to any one of the preceding claims wherein
said trigger signal incorporates coded identification information that uniquely
identifies the transponder
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10. A security system according to claim 9 wherein the device stores
identification information and on reception of a trigger signal, determines if the
transmitted coded identification information match the stored information and
generates a response signal only if the information matches.
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11. A security system according to any one of the preceding claims wherein
the frequency of the response signal varies with each transmission within the
range 200 MHz and 400 MHz.

12. A security system according to any one of the preceding claims wherein
the frequency of individual pulses of the response signal vary within a
predetermined range.
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13. A security system according to any one of the preceding claims wherein said transponder means is mounted in a motor vehicle and is actuated by a proximity sensor or a switch associated with a vehicle door handle.

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14. A security system according to claim 13 wherein the or a second transponder means is associated with vehicle electrical circuits which are enabled on receipt of an authenticated response signal following transmission of a coded trigger signal initiated by vehicle starting procedures.

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15. A security system according to claim 14 wherein the signal strength of the coded trigger signal transmitted on actuation of vehicle starting procedures is such that the signal is unable to be detected by the device outside the vehicle.

15 16. A security system according to any one of claims 13 to 15 wherein the vehicle includes a receptacle with which the device must be engaged before vehicle electrical systems are able to be enabled.

17. A security system substantially as hereinbefore described with reference
20 to the accompanying drawings.